

## The Evaluation of Hong Kong Students' Perception of E-Books in Higher Education

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### Abstract

E-books have been predicted to have a high influence on higher education. However, the use rate of e-e-book adoption in higher education has been lower than expected in Hong Kong. Therefore, it is essential to investigate how students in higher education think of using e-books. In order to obtain a wide view of this survey, a questionnaire survey will be conducted. Research on the perception of higher education students has been done to illustrate the reasons that might lead to a low using rate of e-books. Therefore, the purpose of this study is to help scholar to notice about this issue and encourage students who are in higher education to use more e-books.

### Introduction

E-books have been predicted to have a high influence on higher education. However, the using rate of e-books adoption in higher education has been lower than expected in Hong Kong. Research on the perception of higher education students has been done to illustrate the reasons that might lead to a low using rate of e-books. The objective of the study is to investigate Hong Kong students' perceptions of e-books in higher education.

### Literature Review

The E-book was first invented in 1946 by Roberto Busa (Battershill et al., 2017). It was a highly marked electronic directory to the work of Thomas Aquinas. The E-book was originally stored in a lone computer and later distributed via CDs in the CD-ROM version in 1989. Later in 1949, a Spanish school teacher name Angela Ruiz Robles devised a prototype e-reader, which could help her students access information through a single device (Ribas et al., 2018). This followed after she watched her students struggling with heavy books to and from school daily. That is when she was inspired to invent a way her students would be relieved from carrying heavy books to and from school each day. Angela named her invention the Enciclopedia Mecanica or in simple terms mechanical Encyclopaedia. Her book contained printed texts which were operated by the use of compressed air. She redesigned her book, where she included audio, magnifying glass, calculator, and an electric reading light. In the 1960s, Douglas Englebalt, together with Andries Van Dam, invented their electronic book, of which numerous people believe that e-book started in this era. This was after the File Retrieval and Editing Systems (FRES) documents started running on IBM mainframes. They were structured-oriented instead of line-oriented as it was before with other e-book invention. However, numerous publications state that after all the earlier invention, Michael S Halt was the discoverer of the e-book. Michael generated his first online file by capturing the United States Affirmation of Unconventionality using the computer in plain text.

### Implementation of E-book

After Michael Halt's first electronic document on the independence declaration for the U.S IN 1971, a project named Gutenberg was later launched with the aim of creating the electronic copies of numerous books (Chiarizio, 2013). In the 1970s, another implementation of the e-book on the notebook computer was implemented to display books for reading (Tse et al., 2017). The U.S Department of defense started a conception advancement in 1980 for a portable electric delivery device for maintaining a technical information project known as portable electronic aid for maintenance (PEAM) (Cline, 2019). The U.S Department of defense completed on the detailed information in the financial year 1981/82, and they started on the prototype development using Texas instruments in the same year. In 1986, they produced the four protocols and tested them in the same year (Cline, 2019).

Data Discman (electronic reader) was launched by Sony Corporation in 1992, with the aim of helping in reading the e-books that were kept on the CDs (Jesse, 2014). The library of the future was one of the electronic publication that is played on the Data Discman. The early eBooks were only written for small groups that were devoted to

reading. The availability of the internet, which was launched in most countries in the 1990s, made the transfer of the e-book easier and quicker (Cook & Polgar, 2014).

HyperCard stack is a freeware released in 1993 by Paul Baim, known as E-book, which made it easier the transfer and receive text files to generate a pageable form, which was similar to an electronic paperback book (Kirschenbaum, 2013). A feature was designed to automatically help the reader of the E-Book to the top page that was previously read.

The usage of e-book has increased as more reader software and tools are invented worldwide, and the awareness, as well as the perception of the users, have also evolved accordingly (D'Ambra et al., 2013). The definition of the e-book has so far evolved due to the changes in structures of the e-book as the goes. Researchers have come up with a different definition, and they believe there is a distinctive definition of e-book. Some researcher views an e-book as a script or a manuscript that can be read over electronic devices such as a desktop computer, smartphone or , tablet, while others see it as a designed text to be read over technological devices, distancing itself from published books through the provision of some additional structures that permits the user to interrelate with texts via sounds, visual as well as links. Despite the numerous views of what is an e-book, they all agree that technology is involved in viewing and reading books (Cook & Polgar, 2014).

Students have started using e-books due to the advancement of technology and devices (Martin & Quan-Haase, 2013). The advancement has offered numerous advantages over printed books. To the students, the e-book is cost-effective. The E-book has numerous advantages, some of them being; convincing and portability (Micozzi, 2014). In terms of mobility, the e-book is very convenient since readers do not worry about heavyweight carrying the digital library in their pockets. The accessibility of e-book has benefited both teachers and students since they can easily access them online at any moment, whenever they require them (Simonson et al., 2019). In terms of searching, e-book tools allow the readers to quest for them straightforwardly to enhance their education as well as the teachings (Straus et al., 2018).

However, despite having numerous advantages globally, it also has some drawbacks. In some cases, the e-book has no universal standards, as well as the compatibility of the software and the hardware (Mune & Agee, 2016). Some e-books are not easily accessible since they are not globally accessible due to their formats as well as location restrictions. Some of the e-books cannot be accessed in some areas due to security issues and are only available within some countries. E-books require a longer time when downloading, depending on the storage volume and the download speed (Muir & Hawes, 2013). Another disadvantage is that numerous students and users do not have enough skills to use the e-book, and therefore, they need more training, which might cost them (Connor et al., 2019). Additionally, heavy usage of e-books might lead to health issues such as headaches and eyestrain (Liaw & Huang, 2016). Besides, numerous e-books are copy and paste, and thus they do not have features that are interactive and help the students with materials required for studies out of the classroom, in which the learners will not be in a position to share face-to-face discussion (Schugar, Smith & Schugar, 2013).

According to Peng et al. (2015), the e-book has the ability to annotate and share which promotes the scholars' studies via replication as well as the distribution of the concepts. The E-book has some key feature that enables it to be very useful in learning and teaching. Some of the features include; navigation software, content management, as well as a search tool. According to Hwang et al. (2018), e-books can support learners' education by letting them have a good interact with each other in discussion and knowledge construction.

In numerous schools, the e-book has started being embraced through their libraries, though the assumption is that since the learners have evolved with expertise, they might be interested in abandoning the application of printed books (Walters, 2013). However, the assumption has botched to some degree since the use of e-book has not progressed as swiftly as projected irrespective of the growing technology. The slow movement of the way schools and the learners have embraced the usage of the e-book might be a result of a lack of resources as well as knowledge to use it. According to Muir & Hawes (2013), numerous students prefer using printed books over e-books since the printed books are easy to navigate compared to e-books.

Another challenge of using an e-book is that the publishers of the e-books do not issue them for free, but the sale e-books to the libraries and only a limited license of accessing the title will be given to the libraries (Chiarizio, 2013). Once the library buys an e-book license, its cost is at least three times what it would be for the individual user. The reason why e-books are very costly compared to printed setup is that the editors of an e-book are concerned that e-book that is sold could be read or be sold to multiple people, theoretically ruining the sales (Gutknecht, 2013).

### Perceived Description of E-books

We live in the age of electronic everything because people love the idea of doing everything from virtually anywhere on any device. Having said that, it is no surprise that people began revolutionizing the way people do just about everything. E-Books have been introduced as a result. Recently, electronic resources have gain acceptance quickly among students, especially those of higher learning. Reading among pupils is a vital feature of their learning procedure and ought to be encouraged. An innovation or effort that improves the students' reading motivation is worth supporting.

### Attitude about E-books

Investigating the attitudes of Hong Kong students towards e-books requires the elaborate collection of data citing the nuances or differences between their perceptions. This is based on the fact that perception is a subjective phenomenon that depends on a wide range of factors including the discipline of study, gender, personal learning preferences among other factors.

### Behavioral Intention towards E-books

E-Books integration into schoolroom education makes education fun, and they have an engaging experience. Gone are the days when learners used to carry a bag full of books on a daily basis. With eBooks, one device is sufficient to consist of the whole year's syllabus. The digital books are presented to learners, making sure that education is not boring.

### Characteristics Determining Perceptions towards E-books

Students have started using e-books due to the advancement of technology and devices (Martin & Quan-Haase, 2013). The advancement has offered numerous advantages over printed books. To the students, the e-book is cost-effective. The E-book has numerous advantages, some of them being; convincing and portability (Micozzi, 2014). In terms of mobility, the e-book is very convenient since readers do not worry about heavyweight carrying the digital library in their pockets. The accessibility of e-book has benefited both the teachers and the students since they can easily access them online at any moment, whenever they require them (Simonson et al., 2019). In terms of searching, e-book tools allow the readers to quest for them straightforwardly to enhance their education as well as the teachings (Straus et al., 2018).

### Method And Findings

In this study, a questionnaire survey was conducted to collect data and information from respondents. The target group of this study was students who are studying in post-secondary levels in Hong Kong.

### Population and Sample

The target group of this survey was the students who are studying in the post-secondary level with and without experience in using e-books. Therefore, the information and data from them which will be more useful and precise for the survey. Population and sample 120 questionnaires were distributed, and all were returned and can be used in this survey. Table 1 shows the demographic characteristics of respondents.

Table 1. Demographic Characteristics of Respondents

Variables	Frequency
Gender	
Male	50%
Female	50%
Age	
18-22 years old	85%
22-31 years old	15%
University	
City University of Hong Kong	42%
Hong Kong Baptist University	7%
The Chinese University of Hong Kong	10%
The Hong Kong Polytechnic University	18%
The Hong Kong University of Science and Technology	3%
The University of Hong Kong	8%
Other	13%
Year	
Year 1	24%
Year 2	24%

Year 3	23%
Year 4	22%
Postgraduate or above	7%
Major	
Art/Social Science / Education	33%
Business	22%
Creative Media	3%
Engineering	24%
Law	4%
Pharmacy/Medicine	5%
Science	9%
Mode of Study	
Full time	98%
Part time	2%
Time Spent on E-books per Week	
<0.5 hours	42%
0.5-1 hours	15%
1-2 hours	18%
>2 hours	26%
Time Spent on every Session	
<5 minutes	30%
5-10 minutes	9%
11-20 minutes	16%
21-30 minutes	14%
>30 minutes	31%
Time Spent per Day for Non-Educational Purposes	
<5 minutes	54%
5-10 minutes	9%
11-20 minutes	12%
21-30 minutes	6%
>30 minutes	19%
Time Spent per Day for Educational Purposes	
<5 minutes	52%
5-10 minutes	11%
11-20 minutes	11%
21-30 minutes	9%
>30 minutes	17%

### Data Collection Method and Analysis

The questionnaire used in this report has designed according to the four fields of perceived description of e-books, attitude about e-books, behavioral intention towards e-books and characteristics determining perception towards e-books.

The questionnaire was divided into three parts. Part 1 is the personal information of respondents. Part 2 is the issue about habit of students using e-books. Part 3 is the perceptions about e-books of students.

The questionnaires were distributed during summer break through online. As a result, numerous of questionnaires can be distributed to our target group.

### Data Analysis and Findings

Table 2 was shown below which is the descriptive statistics which provided a summary about the investigated items in this survey. Besides, five-point Likert scale was used to measure the items. All items below, the scale was measured by (1 = Strongly disagree to 5 strongly agree).

Table 2. Summarized Descriptive Statistics

Descriptive Statistics			
ITEM	N	M	s
11. I think E-book is using electronic devices to read books that are in the digital version.	120	4.15	0.95
12. I think E-book is a dedicated device for reading electronic versions of printed books.	120	3.32	1.14
13. I think E-book is text in digital format.	120	2.96	1.13
14. I think E-books are information on the digital format with embedded multimedia.	120	3.35	1.08
15. I am good at using computer technologies	120	3.82	0.94
16. Using E-books for learning always leads to a predicted result.	120	3.23	0.99
17. The organization of digital text on the E-books is clear.	120	3.55	0.89
18. E-books provide relevant information for my course.	120	3.85	0.77
19. E-books present the information in an appropriate format.	120	3.63	0.89
20. The information contained in the E-books is very good.	120	3.64	0.84
21. E-books have visually appealing materials.	120	3.24	1.05
22. I have the experience to use a handled device (laptops, tablets, smartphones, etc.)	120	4.44	0.92
23. I use E-books for in-class reading resources.	120	3.8	1.07
24. I use E-books for in-class designing resources.	120	3.62	1.03
25. I use E-books in my own research.	120	3.68	1.03
26. I use E-books for my other interest (e.g., Entertainment)	120	3.47	1.26
27. I am easy to get the E-books that relevant to my studying area.	120	3.7	0.98
28. I mostly depend on E-books for my learning.	120	3.53	1.08
29. I am encouraged to use E-books during my study.	120	3.21	1.08
30. E-books are included in my course materials.	120	3.53	1.05
31. E-books are on my reading lists or handouts.	120	3.51	1.11
32. E-books are easy to access.	120	3.72	1.01
33. E-books are useful.	120	3.63	0.92
34. E-books are user friendly.	120	3.86	1.01
35. Using E-books help me easier to finish coursework.	120	3.46	1.08
36. Using E-books are easy for me	120	3.95	0.88
37. I believe it is a good idea to use E-books to assist my coursework.	120	3.69	0.97
38. Overall, I enjoy using E-books	120	3.56	0.96

The collected information was examined before the data analysis to ensure validation and reliability. First, the results of component analysis were used to ensure the components in questionnaires are valid. The obtained value in analysis must be greater than 0.7. For the perceived description of e-books, it included 4 items and ranged from 0.95 to 1.14. For attitude about e-books, it included 8 items and ranged from 0.77 to 1.05. For behavioral intention towards e-books, it included 9 items and ranged from 0.98 to 1.26. For characteristics determining perceptions towards e-books, it included 7 items and range from 0.88 to 1.08. As the result obtained were all higher than 0.7, the collected data perceived as valid.

### Discussion and Conclusion

This report investigated experience from students towards E-books. The questionnaire survey was conducted to ask for students from higher education points of view towards E-books.

Four fields of instruction are used for investigating. They are perceived description, attitude about E-books, behavioral intention E-books and characteristics determining perceptions towards E-books. They are used to investigate the level of students towards satisfaction in E-books.

Numerous institutions have adopted the use of e-book since it made the research work easier than it was with perusing the pages of a physical book in search of data. Colleges, Universities, as well as military institutions have embraced e-book technology. The advancement of e-book features have attracted many users and offered numerous advantages over physical printed books. The E-book is very convenient in terms of mobility since the readers do not require carrying heavyweight; they just carry a digital library in their pockets. The accessibility of the e-book is why numerous institutions have adopted it since all the readers can access them anytime, whenever they want as long as the internet is available.

## References

- Battershill, C., Southworth, H., Staveley, A., Widner, M., Gordon, E. W., & Wilson, N. (2017). *Scholarly Adventures in Digital Humanities: Making the Modernist Archives Publishing Project*. Springer.
- Chiarizio, M. (2013). An American tragedy: e-books, licenses, and the end of public lending libraries. *Vand. L. Rev.*, 66, 615.
- Cline, R. S. (2019). *World power trends and US foreign policy for the 1980s*. Routledge.
- Connor, C. M., Day, S. L., Zargar, E., Wood, T. S., Taylor, K. S., Jones, M. R., & Hwang, J. K. (2019). Building word knowledge, learning strategies, and metacognition with the Word-Knowledge e-Book. *Computers & Education*, 128, 284-311.
- Cook, A. M., & Polgar, J. M. (2014). *Assistive technologies-e-book: principles and practice*. Elsevier Health Sciences.
- D'Ambra, J., Wilson, C. S., & Akter, S. (2013). Application of the task-technology fit model to structure and evaluate the adoption of E-books by Academics. *Journal of the American Society for information science and technology*, 64(1), 48-64.
- Gutknecht, K. (2013). Apple and Amazon's Antitrust Antics: Two Wrongs Don't Make a Right, But Maybe They Should. *CommLaw Conspectus*, 22, 160.
- Hale, J. S. (2013). Amazon cloud drives the forensic analysis. *Digital Investigation*, 10(3), 259-265.
- Hwang, G. J., Tu, N. T., & Wang, X. M. (2018). Creating interactive E-books through learning by design: The impacts of guided peer-feedback on students' learning achievements and project outcomes in science courses. *Journal of Educational Technology & Society*, 21(1), 25-36.
- Jesse, G. R. (2014). College Student Perceptions of e-Textbooks and E-Readers: New Ways to Learn?. *Issues in Information Systems*, 15(1).
- Kirschenbaum, M. (2013). The Textual Condition: Digital Humanities, Born-Digital Archives, and the Future Literary. *DHQ: Digital Humanities Quarterly*, 7(1).
- Liaw, S. S., & Huang, H. M. (2016). Investigating learner attitudes toward e-books as learning tools: based on the activity theory approach. *Interactive Learning Environments*, 24(3), 625-643.
- Martin, K., & Quan-Haase, A. (2013). Are e-books replacing print books? Tradition, serendipity, and opportunity in the adoption and use of e-books for historical research and teaching. *Journal of the American Society for Information Science and Technology*, 64(5), 1016-1028.
- Micozzi, M. S. (2014). *Fundamentals of complementary and alternative medicine-E-book*. Elsevier Health Sciences.
- Muir, L., & Hawes, G. (2013). The case for e-book literacy: Undergraduate students' experience with e-books for course work. *The Journal of Academic Librarianship*, 39(3), 260-274.
- Mune, C., & Agee, A. (2016). Are e-books for everyone? An evaluation of academic e-book platforms' accessibility features. *Journal of Electronic Resources Librarianship*, 28(3), 172-182.
- Peng, W., Ratan, R. A., & Khan, L. (2015, January). Ebook uses and class performance in a college course. In *2015 48th Hawaii International Conference on System Sciences* (pp. 63-71). IEEE.
- Ribas, L., Rangel, A., Verdicchio, M., & Carvalhais, M. (2018). xCoAx 2018 Special Issue.
- Schugar, H. R., Smith, C. A., & Schugar, J. T. (2013). Teaching with interactive picture e-books in grades K–6. *The Reading Teacher*, 66(8), 615-624.
- Shimray, S. R., Keerti, C., & Ramaiah, C. K. (2015). An overview of mobile reading habits. *DESIDOC Journal of Library & Information Technology*, 35(5), 343-354.
- Simonson, M., Zvacek, S. M., & Smaldino, S. (2019). *Teaching and Learning at a Distance: Foundations of Distance Education 7th Edition*. IAP.
- Straus, S. E., Glasziou, P., Richardson, W. S., & Haynes, R. B. (2018). *Evidence-Based Medicine E-Book: How to Practice and Teach EBM*. Elsevier Health Sciences.
- Tse, E., Duncalf, J., Benner, E., & Xin, M. (2017). U.S. Patent No. 9,665,258. Washington, DC: U.S. Patent and Trademark Office.
- Walters, W. H. (2013). E-books in academic libraries: challenges for acquisition and collection management. *Portal: Libraries and the Academy*, 13(2), 187-211.